

SEQUENCE LISTING

<110> EXELIXIS, INC.
<120> PRKCS AS MODIFIERS OF THE BETA CATENIN PATHWAY AND METHODS OF USE
<130> EX04-056C-PC
<150> US 60/495,172
<151> 2003-08-14
<160> 12
<170> PatentIn version 3.2
<210> 1
<211> 2261
<212> DNA
<213> Homo sapiens
<400> 1
ccgcgggttcc ggctgctccg gcgaggcgac ccttgggtcg gcgctgcggg cgaggtggc 60
aggttaggtgg gcggacggcc gcgggttctcc ggcaagcgca ggcggcggag tccccacgg 120
cgccccgaagc gccccccgca cccccggcct ccagcgttga ggcgggggag tgaggagatg 180
ccgacccaga gggacagcag caccatgtcc cacacgtcg caggcggcgg cagcggggac 240
cattcccacc aggtccgggt gaaagctac taccgcggg atatcatgtat aacacattt 300
gaaccttcca tctccttga gggccttgc aatgaggttc gagacatgtg ttctttgac 360
aacgaacagc tcttcaccat gaaatggata gatgaggaag gagacccgtg tacagtatca 420
tctcagttgg agttagaaga agcctttaga ctttatgagc taaacaagga ttctgaactc 480
ttgattcatg tgttcccttg tgtaccagaa cgtcctggta tgccctgtcc aggagaagat 540
aaatccatct accgttagagg tgcaacgcccgc tggagaaagc tttattgtgc caatggccac 600
actttccaag ccaagcgttt caacaggcgt gctcactgtg ccatctgcac agaccgaata 660
tggggacttg gacgccaagg atataagtgc atcaactgca aactcttgggt tcataagaag 720
tgccataaac tcgtcacaat tgaatgtggg cggcatttt tgccacagga accagtgtatc 780
cccatggatc agtcatccat gcattctgac catgcacaga cagtaattcc atataatcct 840
tcaagtcatg agagtttggta tcaagttgggt gaagaaaaag aggcaatgaa caccagggaa 900
agtggcaaag cttcatccag tctaggtctt caggatttg atttgctccg ggtaatagga 960
agaggaagtt atgccaaagt actgttggtt cgattaaaaaa aaacagatcg tatttatgca 1020
atgaaagttg tgaaaaaaga gcttgttaat gatgatgagg atattgattg ggtacagaca 1080

gagaagcatg	tgttttagca	ggcatccaaat	catcctttcc	ttgttgggct	gcattcttgc	1140
tttcagacag	aaagcagatt	gttctttgtt	atagagtatg	taaatggagg	agacctaattg	1200
tttcatatgc	agcgacaaag	aaaacttcct	gaagaacatg	ccagatttta	ctctgcagaa	1260
atcagtctag	cattaaat	tcttcatgag	cgagggataa	tttata	gaga	1320
gacaatgtat	tactggactc	tgaaggccac	attaaactca	ctgactacgg	catgtgtaag	1380
gaaggattac	ggccaggaga	tacaaccagc	actttctgtg	gtactcctaa	ttacattgct	1440
cctgaaat	taagaggaga	agattatgg	ttcagtgtt	actggtgggc	tcttggagtg	1500
ctcatgttt	agatgatggc	aggaaggct	ccatttgata	ttgttggag	ctccgataac	1560
cctgaccaga	acacagagga	ttatctcttc	caagttat	tgaaaaaaca	aattcgcata	1620
ccacgttctc	tgtctgtaaa	agctgcaagt	gttctgaaga	gttttcttaa	taaggaccct	1680
aaggaacat	tgggttgc	tcctcaaaca	ggatttgctg	atattcaggg	acaccgttc	1740
ttccgaaat	ttgattgg	tatgatgg	caaaaacagg	tggtacctcc	ctttaaacc	1800
aatatttctg	ggaaatttgg	tttggacaac	tttgattctc	agtttactaa	tgaacctgtc	1860
cagctcactc	cagatgacga	tgacatttg	aggaagattg	atcagtctga	atttgaaggt	1920
tttgagtata	tcaatcctc	tttgatgtct	gcagaagaat	gtgtctgatc	ctcattttc	1980
aaccatgtat	tctactcatg	ttgccattt	atgcatgg	aaacttgctg	caagcctgga	2040
tacaattaac	catttat	ttgccaccta	caaaaaaaca	cccaatatct	tctctgttag	2100
actatatgaa	tcaattat	catctgttt	actatgaaaa	aaaaattaat	actactagct	2160
tccagacaat	catgtcaaaa	tttagttgaa	ctggttttc	agttttaaa	aggcctacag	2220
atgagtaatg	aagttacctt	ttttgtttaa	aaaaaaaaaa	g		2261

<210> 2
 <211> 2325
 <212> DNA
 <213> Homo sapiens

<400> 2	agcggttt	ggcccgccg	gctgttaggg	cgccggcgcc	tacgggcagt	gggaggagcc	60
	gcgcgggttcc	ggctgctccg	gcgaggcgac	ccttgggtcg	gcgcgtgcggg	cgaggtggc	120
	aggttaggtgg	gcggacggcc	gcgggtctcc	ggcaagcgca	ggcggcggag	tccccacgg	180
	cgcggcggc	gccccccgc	accggcggcc	tccagcggtt	aggcggggga	gtgaggagat	240
	gccgacccag	agggacagca	gcaccatgtc	ccacacggtc	gcaggcggcg	gcagcgggga	300

ccattccac caggtccggg tgaaagccta ctaccgcggg gatatcatga taacacattt 360
tgaaccttcc atctcctttg agggccttg caatgagggt cgagacatgt gttctttga 420
caacgaacag ctcttcacca tgaaatggat agatgaggaa ggagacccgt gtacagtatc 480
atctcagttg gagttagaag aagcctttag actttatgag ctaaacaagg attctgaact 540
cttgattcat gtgtccctt gtgtaccaga acgtcctggg atgccttgc caggagaaga 600
taaatccatc taccgttagag gtgcacgccc ctggagaaag ctttattgtg ccaatggcca 660
cactttccaa gccaagcgtt tcaacaggcg tgctcactgt gccatctgca cagaccgaat 720
atggggactt ggacgccaag gatataagtg catcaactgc aaactcttgg ttcataagaa 780
gtgccataaa ctcgtcaca ttgaatgtgg gggcattct ttgccacagg aaccagtgt 840
gccccatggat cagtcatcca tgcattctga ccatgcacag acagtaattc catataatcc 900
ttcaagtcat gagagtttgg atcaagttgg tgaagaaaaa gaggcaatga acaccaggaa 960
aagtggcaaa gcttcatcca gtctaggtct tcaggatttt gatttgctcc gggtaatagg 1020
aagaggaagt tatgccaaag tactgttgg tcgattaaaaaaa acagatc gtatttatgc 1080
aatgaaagtt gtgaaaaaaag agcttgttaa tcatgtatgag gatattgatt ggtacagac 1140
agagaagcat gtgttgagc aggcattccaa tcattccttc cttgttggc tgcattcttgc 1200
ctttcagaca gaaagcagat tgttcttgc tatagagtat gtaaatggag gagaccta 1260
gtttcatatg cagcgacaaa gaaaacttcc tgaagaacat gccagattt actctgcaga 1320
aatcagtcta gcattaaatt atcttcatga gcgagggata atttatacg atttgaaact 1380
ggacaatgta ttactggact ctgaaggcca cattaaactc actgactacg gcatgtgtaa 1440
ggaaggatta cggccaggag atacaaccag cactttctgt ggtactccta attacattgc 1500
tcctgaaatt ttaagaggag aagattatgg ttctcagttttt gactgggtgg ctcttggagt 1560
gctcatgttt gagatgatgg caggaaggc tccatttgat attgttggg gctccgataa 1620
ccctgaccag aacacagagg attatctttt ccaagttatt ttggaaaaac aaattcgcat 1680
accacgttct atgtctgtaa aagctgcaag tttctgtttt gatatttttttataaggaccc 1740
taaggaacga ttgggttgc ttccctaaac aggatttgc gatattcagg gacacccgtt 1800
cttccgaaat gttgattggg atatgatgga gcaaaaacag gtggtacctc ctttaaacc 1860
aaatatttct ggggaatttg gtttggacaa ctttgattct cagttacta atgaacgtgt 1920
ccagctcaact ccagatgacg atgacattgt gaggaagatt gatcagtctg aatttgaagg 1980

ttttgagtat atcaatcctc	ttttgatgtc tgcagaagaa	tgtgtctgat cctcatttt	2040
caaccatgta ttctactcat	gttgcattt aatgcatttga	taaacttgct gcaaggctgg	2100
atacaattaa ccattttata	tttgcacact aaaaaaaaaac	acccaatatac ttctcttgc	2160
gactatatga atcaattatt	acatctgttt tactatgaaa	aaaaaaattaa tactactagc	2220
ttccagacaa tcatgtcaaa	atttagttga actgggtttt	cagttttaa aaggcctaca	2280
gatgagtaat gaagttatct	ttttgttta aaaaaaaaaa	aaaaaa	2325

<210> 3
<211> 2261
<212> DNA
<213> Homo sapiens

<400> 3	ccgcggttcc ggctgctccg	gcgaggcgac cttgggtcg	cgctgcggg cgaggtggc	60		
aggttaggtgg	gcggacggcc	gccccgttctcc	ggcaagcgca	ggcgccggag	tccccacgg	120
cgcccgaa	gcggccgc	cccccgccct	ccagcgttga	ggcgccggag	tgaggagatg	180
ccgacccaga	gggacagcag	caccatgtcc	cacacggtcg	caggcggcgg	cagcggggac	240
cattcccacc	aggccgggt	gaaagcctac	taccgcgggg	atatcatgat	aacacatttt	300
gaaccttcca	tctccttga	gggccttgc	aatgaggttc	gagacatgtg	ttctttgac	360
aacgaacagc	tcttcaccat	gaaatggata	gatgaggaag	gagaccgtg	tacagtatca	420
tctcagttgg	agttagaaga	agcctttaga	ctttatgagc	taaacaagga	ttctgaactc	480
ttgattcatg	tgttcccttg	tgtaccagaa	cgtcctggga	tgccctgtcc	aggagaagat	540
aaatccatct	accgttagagg	tgcacgcccgc	tggagaaagc	tttattgtgc	caatggccac	600
actttccaag	ccaagcgttt	caacaggcgt	gctcactgtg	ccatctgcac	agaccgaata	660
tggggacttg	gacgccaagg	atataagtgc	atcaactgca	aactcttgg	tcataagaag	720
tgccataaac	tcgtcacaat	tgaatgtggg	cgccatttt	tgccacagga	accagtgtat	780
cccatggatc	agtcatccat	gcattctgac	catgcacaga	cagtaattcc	atataatcct	840
tcaagtcatg	agagtttgg	tcaagttgg	gaagaaaaag	aggcaatgaa	caccaggaa	900
agtggcaaag	cttcatccag	tctaggtctt	caggatttt	atttgctccg	ggtaatagga	960
agaggaagtt	atgccaaagt	actgttggtt	cgattaaaaaa	aaacagatcg	tatttatgca	1020
atgaaagttg	tgaaaaaaga	gcttgttaat	gatgatgagg	atattgattt	ggtacagaca	1080
gagaagcatg	tgttgagca	ggcatccat	catccttcc	ttgttggct	gcattttgc	1140

tttcagacag aaagcagatt gttctttgtt atagagtatg taaatggagg agacctaattg 1200
tttcatatgc agcgacaaag aaaacttcct gaagaacatg ccagattta ctctgcagaa 1260
atcagtc tag cattaaatta tcttcatgag cgagggataa tttatagaga tttgaaactg 1320
gacaatgtat tactggactc tgaaggccac attaaactca ctgactacgg catgtgtaag 1380
gaaggattac ggccaggaga tacaaccgc actttctgtg gtactcctaa ttacattgct 1440
cctgaaattt taagaggaga agattatggt ttcagtgttgc actgggtggc tcttggagtg 1500
ctcatgttgc agatgtatggc aggaaggctt ccatttgata ttgttggag ctccgataac 1560
cctgaccaga acacagagga ttatctcttc caagttattt tggaaaaaca aattcgcata 1620
ccacgttctc tgtctgtaaa agctgcaagt gttctgaaga gttttcttaa taaggaccct 1680

aaggaacgat tgggttgtca tcctcaaaca ggatttgcgt atattcaggg acaccgttc 1740
ttccgaaatg ttgattgggat tatgatggag caaaaacagg tggcacctcc cttaaacc 1800
aatatttctg ggaatttgg tttggacaac tttgatttctc agtttactaa tgaacctgtc 1860
cagctcactc cagatgacga tgacattgtg aggaagattg atcagtctga atttgaaggt 1920
tttggatata tcaatcctct tttgatgtct gcagaagaat gtgtctgatc ctcattttc 1980
aaccatgtat tctactcatg ttgccattta atgcatggat aaacttgctg caagcctgga 2040
tacaattaac cattttatata ttgccaccta caaaaaaaca cccaatatct tctcttgtag 2100
actatatgaa tcaatttatta catctgtttt actatgaaaa aaaaattaat actactagct 2160
tccagacaat catgtcaaaa tttagtgaa ctggttttc agttttaaa aggccctacag 2220
atgagtaatg aagttacattt ttttggtaa aaaaaaaaaa g 2261

<210> 4
<211> 2320
<212> DNA
<213> *Homo sapiens*

```
<400> 4
ttttggggccc gggcggtgt agaggcgcg ggcgcctacgg gcagtgggag gagccgcgcg 60
gttccggctg ctccggcgag gcgacccttg ggtcgccgct gcggggcgagg tgggcaggt 120
ggtgtggcgga cggccgcggg tctccggcaa gcgcaggcg cgagatcccc cacggcgccc 180
gaagcgcccc cccgcacccc cggcctccag cgttgaggcg ggggagtgag gagatgccga 240
cccagagggc cagcagcacc atgtccccaca cggtcgcagg cggcggcagc ggggaccatt 300
cccaccaggt ccgggtgaaa gcctactacc gcggggatat catgataaca cattttgaac 360
```

cttccatctc	cttgagggc	cttgcaatg	aggtcgaga	catgtgttct	tttgacaacg	420
aacagctctt	caccatgaaa	tggatagatg	aggaaggaga	cccggttaca	gtatcatctc	480
agttggagtt	agaagaagcc	tttagacttt	atgagctaaa	caaggattct	gaactcttga	540
ttcatgtgtt	cccttgttgc	ccagaacgtc	ctgggatgcc	ttgtccagga	gaagataaat	600
ccatctaccg	tagaggtgca	cgccgctgga	gaaagcttta	tttgccaaat	ggccacactt	660
tccaagccaa	gcgttcaac	aggcgtgctc	actgtgccat	ctgcacagac	cgaatatggg	720
gacttggacg	ccaaggatat	aagtgcata	actgcaaact	cttggttcat	aagaagtgcc	780
ataaaactcgt	cacaattgaa	tgtggcggc	attctttgcc	acaggaacca	gtgatgccc	840
tggatcagtc	atccatgcat	tctgaccatg	cacagacagt	aattccatat	aatccttcaa	900
gtcatgagag	tttggatcaa	gttggtgaag	aaaaagaggc	aatgaacacc	aggaaagtg	960
gcaaagcttc	atccagtcta	ggtcttcagg	attttgattt	gctccggta	ataggaagag	1020
gaagttatgc	caaagtactg	ttgggatcgat	taaaaaaaac	agatcgattt	tatgcaatga	1080
aagttgtgaa	aaaagagctt	gttaatgatg	atgaggatat	tgattggta	cagacagaga	1140
agcatgtgtt	tgagcaggca	tccaaatcatc	cttccttgc	tgggctgcat	tcttgcttcc	1200
agacagaaag	cagattgttc	tttggatag	agatgtaaa	tggaggagac	ctaatttttc	1260
atatgcagcg	acaaagaaaa	cttcctgaag	aacatgccag	attttactct	gcagaaatca	1320
gtcttagcatt	aaatttatctt	catgagcgag	ggataattta	tagagattt	aaactggaca	1380
atgttattact	ggactctgaa	ggccacatta	aactcaactga	ctacggcatg	tgtaaggaag	1440
gattacggcc	aggagataca	accagcaatt	tctgtggtac	tcctaattac	attgctcctg	1500
aaatttttaag	aggagaagat	tatggttca	gtgttgactg	gtgggctctt	ggagtgcata	1560
tgtttgagat	gatggcagga	aggctccat	ttgatattgt	tggagctcc	gataaccctg	1620
accagaacac	agaggattat	ctcttccaag	ttatatttgg	aaaacaaatt	cgcataaccac	1680
gttctatgtc	tgtaaaagct	gcaagtgttc	tgaagagttt	tcttaataag	gaccctaagg	1740
aacgattggg	ttgtcttcct	caaacaggat	ttgctgatat	tcaggacac	ccgttcttcc	1800
gaaatgtga	ttgggatatg	atggagcaaa	aacaggtgg	accccttta	aaaccaaata	1860
tttctgggaa	atttggtttg	gacaactttg	attctcagtt	tactaatgaa	cgtgtccagc	1920
tcactccaga	tgacgatgac	attgtgagga	agattgatca	gtctgaattt	gaaggttttg	1980
agtatatcaa	tcctcttttg	atgtctgcag	aagaatgtgt	ctgatcctca	ttttcaacc	2040

atgtattcta	ctcatgttgc	catttaatgc	atggataaac	ttgctgcaag	cctggataca	2100
attaaccatt	ttatatttgc	cacccataaaa	aaaacaccca	atatcttctc	ttgttagacta	2160
tatgaatcaa	ttattacatc	tgttttacta	tgaaaaaaaaa	attaatacta	ctagcttcca	2220
gacaatcatg	tcaaaattta	gttgaactgg	ttttcagtt	tttaaaaggc	ctacagatga	2280
gtaatgaagt	tatctttttt	gtttaaaaaaa	aaaaaaaaaa			2320

<210> 5
 <211> 2320
 <212> DNA
 <213> Homo sapiens

<400> 5						
ttttggggcc	ggcggtgt	agaggcggcg	gcccctacgg	gcagtggag	gagccgcgcg	60
gttccggctg	ctccggcgag	gcgaccctt	ggtcggcgct	gcgggcgagg	tgggcaggta	120
ggtggcgga	cggccgcgt	tctccggcaa	gcccaggcgg	cgagatcccc	cacggcgccc	180
gaagcgcccc	cccgaccccc	cggcctccag	cggtgaggcg	ggggagttag	gagatgccga	240
cccagaggga	cagcagcacc	atgtcccaca	cggtcgccagg	cgccggcagc	ggggaccatt	300
cccaccaggt	ccgggtgaaa	gcctactacc	gcggggat	catgataaca	cattttgaac	360
cttccatctc	cttgagggc	cttgcaatg	aggtcgaga	catgtgttct	tttgacaacg	420
aacagctctt	caccatgaaa	tggatagatg	aggaaggaga	ccctgttaca	gtatcatctc	480
agttggagtt	agaagaagcc	tttagacttt	atgagctaaa	caaggattct	gaactcttga	540
ttcatgtgtt	cccttgttga	ccagaacgtc	ctggatgcc	ttgtccagga	gaagataaat	600
ccatctaccg	tagaggtgca	cggcgttgg	gaaagcttta	ttgtccaaat	ggccacactt	660
tccaagccaa	gcgttcaac	aggcgtgctc	actgtgccat	ctgcacagac	cgaatatggg	720
gacttggacg	ccaaggat	aagtgcata	actgcaact	cttggttcat	aagaagtgcc	780
ataaaactcgt	cacaattgaa	tgtggcg	attcttgc	acaggaacca	gtgatgccca	840
tggatcagtc	atccatgcat	tctgaccatg	cacagacagt	aattccat	aatccttcaa	900
gtcatgagag	tttggatcaa	gttggtgaag	aaaaagaggc	aatgaacacc	aggaaagtg	960
gcaaagcttc	atccagtcta	ggtcttcagg	atttgattt	gctccggta	ataggaagag	1020
gaagttatgc	caaagtactg	ttggttcgat	aaaaaaaaac	agatgttatt	tatgcaatga	1080
aagttgtgaa	aaaagagctt	gttaatgatg	atgaggat	tgattggta	cagacagaga	1140
agcatgtgtt	tgagcaggca	tccaaatcatc	ctttccttgc	tggcgtcat	tcttgcttcc	1200

agacagaaaag cagattgttc tttgttatag agtatgtaaa tggaggagac ctaatgttc	1260
atatgcagcg acaaagaaaa cttcctgaag aacatgccag attttactct gcagaaatca	1320
gtcttagcatt aaattatctt catgagcgag ggataattta tagagatttgg aactggaca	1380
atgtattact ggactctgaa ggccacatta aactcaactga ctacggcatg tgtaaggaag	1440
gattacggcc aggagataca accagcactt tctgtggtac tcctaattac attgctcctg	1500
aaattttaag aggagaagat tatggttca gtgttgactg gtggcttgg gtagtgcata	1560
tgtttgagat gatggcagga aggtctccat ttgatattgt tggagctcc gataaccctg	1620
accagaacac agaggattat ctcttccaag ttattttggaaaacaaatt cgcataccac	1680
gttctatgtc tgtaaaagct gcaagtgttc tgaagagttt tcttaataag gaccctaagg	1740
aacgattggg ttgtcttcct caaacaggat ttgctgatat tcagggacac ccgttcttcc	1800
gaaatgtga ttggatatg atggagcaaa aacaggtggt acctccctt aaaccaaata	1860
tttctgggaa atttggtttgcacaactttg attctcagtt tactaatgaa cgtgtccagc	1920
tcactccaga tgacgatgac attgtgagga agattgatca gtctgaattt gaagggttttgc	1980
agtatatcaa tcctcttttgcagttctgc aagaatgtgt ctgatcctca ttttcaacc	2040
atgtattcta ctcatgttgc cattaatgc atggataaac ttgctgcaag cctggataca	2100
attaaccatt ttatatttgc cacctacaaa aaaacaccca atatcttctc ttgttagacta	2160
tatgaatcaa ttattacatc tgtttacta tgaaaaaaaaa attaatacta ctagcttcca	2220
gacaatcatg tcaaaattta gttgaactgg ttttcagtt tttaaaaggc ctacagatga	2280
gtaatgaagt tatctttttt gttaaaaaaaaaaaaaaa	2320

<210> 6
 <211> 2164
 <212> DNA
 <213> Homo sapiens

<400> 6	
atgcccagca ggaccgaccc caagatggaa gggagcggcg gccgcgtccg cctcaaggcg	60
cattacgggg gggacatctt catcaccagc gtggacgccc ccacgacattt cgaggagctc	120
tgtgaggaag tgagagacat gtgtcgtctg caccagcagc acccgctcac cctcaagtgg	180
gtggacagcg aaggtgaccc ttgcacggtg tcctcccaga tggagctggaa agaggcttc	240
cgcctggccc gtcagtgcag ggtatgaaggc ctcatcattt atgtttccc gagcaccctt	300
gagcagcctg gcctgccatg tccggagaa gacaaatcta tctaccgccc gggagccaga	360

agatggagga agctgtaccc tgccaaacggc cacctcttcc aagccaagcg cttaaacagg 420
agagcgtact gcggtcagtg cagcgagagg atatggggcc tcgcgaggca aggctacagg 480
tgcatcaact gcaaactgct ggtccataag cgctgccacg gcctcgccc gctgacctgc 540
aggaagcata tggattctgt catgccttcc caagagcctc cagtagacga caagaacgag 600
gacgcccggacc ttccctccga ggagacagat ggaattgctt acatttcctc atcccgaaag 660
catgacagca ttaaagacga ctcggaggac cttaagccag ttatcgatgg gatggatgga 720
atcaaaatct ctcaggggct tgggctgcag gactttgacc taatcagagt catcgggcgc 780
gggagctacg ccaaggttct cctgggtgcgg ttgaagaaga atgaccaaatttacgccc 840
aaagtggta agaaagagct ggtgcatgat gacgaggata ttgactgggt acagacagag 900
aagcacgtgt ttgagcaggc atccagcaac cccttcctgg tcggattaca ctcctgcttc 960
cagacgacaa gtcgggttgcatt cctggtcatt gagtacgtca acggcggggaa cctgatgttc 1020
cacatgcaga ggcagagggaa gtcctctgag gagcacgcca gttctacgc ggccgagatc 1080
tgcacatcgccc tcaacttcct gcacgagagg gggatcatct acagggacct gaagctggac 1140
aacgtcctcc tggatgcgga cgggcacatc aagtcacag actacggcat gtgcaaggaa 1200
ggcctgggcc ctggtgacac aacgagact ttctgcggaa ccccaatta catcgcccc 1260
gaaatcctgc ggggagagga gtacgggttc agcgtggact ggtggcgct gggagtcctc 1320
atgtttgaga tggatggccgg ggcgtccccc ttcgacatca tcaccgacaa cccggacatg 1380
aacacagagg actacccctt ccaagtgtac ctggagaagc ccatccggat ccccccgggttc 1440
ctgtccgtca aagcctccca tgttttaaaa ggattttaa ataaggaccc caaagagagg 1500
ctcggctgcc ggccacagac tggatttct gacatcaagt cccacgcgtt cttccgcagc 1560
atagactggg acttgctgga gaagaagcag ggcgtccctc cattccagcc acagatcaca 1620
gacgactacg gtctggacaa ctggacaca cagttcacca gcgagcccggt gcagctgacc 1680
ccagacgatg aggtggccat aaagaggatc gaccagtcag agttcgaagg ctggatgtat 1740
atcaacccat tattgctgtc caccgaggag tcgggtgtgag gcccgcgtgcg tctctgtcgt 1800
ggacacgcgt gattgaccct ttaactgtat ccttaaccac cgcatatgca tgccaggctg 1860
ggcacggctc cgagggcgcc cagggacaga cgcttgcgcc gagaccgcag agggaaagcgt 1920
cagcgggcgc tgctgggagc agaacagtcc ctcacacctg gcccggcagg cagcttcgtg 1980
ctggaggaac ttgctgttgt gcctgcgtcg cggcggatcc gcggggaccc tgccgggggg 2040

gctgtcatgc ggtttccaag gtgcacattt tccacggaaa cagaactcga tgcactgacc 2100
tgctccgcca ggaaagttag cgttagcgt cctgaggaat aaaatgttcc gatgaaaaaa 2160
aaaa 2164

<210> 7
<211> 2315
<212> DNA
<213> Homo sapiens

<400> 7
ggcacgaggc tgagcgctgc cttccgcgtt ccggccgcggc cccacctgga gccccggccc 60
cgcgcacatgg ccggagctcc cggggcgcag cgctgacggc ggcggggggg ggcgcgcacatgg 120
cccagcagga ccggcccca gatggaaggg agcggcggcc gctccgcct caaggcgcacatgg 180
tacggggggg acatcttcat caccagcgtg gacgcccaca cgaccttcga ggagctctgt 240
gaggaagtga gagacatgtg tcgtctgcac cagcagcacc cgctcaccct caagtgggtg 300
gacagcgaag gtgacccttg cacgggtgtcc tcccagatgg agctggaaga ggcttccgc 360
ctggcccgtc agtgcagggg tgaaggcctc atcattcatg ttttcccgag caccctgtgag 420
cagcctggcc tgccatgtcc gggagaagac aaatctatct accgcccggg agccagaaga 480
tggaggaagc tgtaccgtgc caacggccac ctcttccaag ccaagcgcctt taacaggaga 540
gcgtactgcg gtcagtgcag cgagaggata tggggcctcg cgaggcaagg ctacaggtgc 600
atcaactgca aactgctggt ccataagcgc tgccacggcc tcgtcccgct gacctgcagg 660
aagcatatgg attctgtcat gccttccaa gagcctccag tagacgacaa gaacgaggac 720
gccgacacctc cttccgagga gacagatgga attgcttaca tttcctcatc ccggaaagcat 780
gacagcatta aagacgactc ggaggacctt aagccagtta tcgatggat ggttggaaatc 840
aaaatctctc aggggcttgg gctgcaggac tttgacctaa tcagagtcat cggggcgggg 900
agctacgcca aggttctcct ggtgcgggtt aagaagaatg accaaattta cgccatgaaa 960
gtggtaaga aagagctggt gcatgatgac gaggatattt actgggtaca gacagagaag 1020
cacgtgtttg agcaggcatc cagcaacccc ttccctggtcg gattacactc ctgctccag 1080
acgacaagtc gttgttccct ggtcatttag tacgtcaacg gcggggacct gatgttccac 1140
atgcagaggc agaggaagct ccctgaggag cacgccaggt tctacgcggc cgagatctgc 1200
atcgccctca acttcctgca cgagagggg atcatctaca gggacctgaa gctggacaac 1260
gtcctcctgg atgcggacgg gcacatcaag ctcacagact acggcatgtg caaggaaggc 1320

ctggggccctg	gtgacacaac	gagcacttgc	tgcggaaccc	cgaattacat	cgcccccggaa	1380
atcctgcggg	gagaggagta	cgggttcagc	gtggactgg	ggcgctgg	agtccatcg	1440
ttttagatga	tggccggcg	ctccccgttc	gacatcatca	ccgacaaccc	ggacatgaac	1500
acagaggact	acctttcca	agtgatcctg	gagaagccca	tccggatccc	ccggttcctg	1560
tccgtcaaag	cctccatgt	tttaaaagga	tttttaata	aggacccaa	agagaggctc	1620
ggctgccggc	cacagactgg	atttctgac	atcaagtccc	acgcgttctt	ccgcagcata	1680
gactgggact	tgctggagaa	gaagcaggcg	ctccctccat	tccagccaca	gatcacagac	1740
gactacggtc	tggacaactt	tgacacacag	ttcaccagcg	agcccgtgca	gctgacccca	1800
gacgatgagg	atgccataaa	gaggatcgac	cagtcagagt	tcgaaggctt	tgagtatatc	1860
aaccattat	tgctgtccac	cgaggagtcg	gtgtgaggcc	gcgtgcgtct	ctgtcgtgga	1920
cacgcgtgat	tgacccttta	actgtatcct	taaccaccgc	atatgcatgc	caggctggc	1980
acggctccga	ggcgcccg	ggacagacgc	ttgcgcgag	accgcagagg	gaagcgtcag	2040
cggcgctgc	tgggagcaga	acagtccctc	acacctggc	ccgggcaggc	cagcttcgtg	2100
ctggaggaac	ttgctgctgt	gcctgcgtcg	cggcgatcc	gcggggaccc	tgccgagggg	2160
gctgtcatgc	gttttccaag	gtgcacattt	tccacggaaa	cagaactcga	tgcactgacc	2220
tgctccgcca	ggaaagttag	cgtgtacgt	cctgaggaat	aaaatgttcc	gatgatgtgg	2280
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaa			2315

<210> 8
 <211> 1779
 <212> DNA
 <213> Homo sapiens

<400> 8						
atgcccagca	ggaccgaccc	caagatggaa	gggagcggcg	gccgcgtccg	cctcaaggcg	60
cattacgggg	gggacatctt	catcaccagc	gtggacgccc	ccacgacctt	cgaggagctc	120
tgtgaggaag	tgagagacat	gtgtcgtctg	caccagcagc	acccgctcac	cctcaagtgg	180
gtggacagcg	aaggtgaccc	ttgcacggtg	tcctcccaga	tggagctgga	agaggcttc	240
cgcctggccc	gtcagtgcag	ggatgaaggc	ctcatcattc	atgtttccc	gagcacccct	300
gagcagcctg	gcctgccatg	tccgggagaa	gacaaatcta	tctaccgccc	gggagccaga	360
agatggagga	agctgtaccc	tgccaacggc	cacctttcc	aagccaagcg	ctttaacagg	420
agagcgtact	gcggtcagtg	cagcgagagg	atatggggcc	tcgcgaggca	aggctacagg	480

tgcataact gcaaactgct ggtccataaag cgctgccacg gcctcgccc gctgacctgc	540
aggaagcata tggattctgt catgccttcc caagagcctc cagtagacga caagaacgag	600
gacgcccacc ttccttccga ggagacagat ggaattgctt acatttcctc atcccgaaag	660
catgacagca ttaaagacga ctcggaggac cttaagccag ttatcgatgg gatggatgga	720
atcaaaatct ctcagggct tggctgcag gacttgacc taatcagagt catcggcgc	780
gggacgtacg ccaaggttct cctgggtgcgg ttgaagaaga atgaccaa attacgccc	840
aaagtggta agaaagagct ggtgcata gacgaggata ttgactgggt acagacagag	900
aagcacgtgt ttgagcaggc atccagcaac cccttcctgg tcggattaca ctcctgcttc	960
cagacgacaa gtcgggtt cctggtcatt gagtacgtca acggcgggaa cctgatgttc	1020
cacatgcaga ggcagagggaa gctccctgag gagcacgcca gttctacgc ggccgagatc	1080
tgcatacgccc tcaacttctt gcacgagagg gggatcatct acagggacct gaagctggac	1140
aacgtcctcc tggatgcgga cggacacatc aagtcacag actacggcat gtgcaaggaa	1200
ggcctgggcc ctgggtgacac aacgagactt ttctgcggaa ccccgattt catcgcccc	1260
gaaatcctgc ggggagagga gtacgggttc agcgtggact ggtggcgct gggagtcctc	1320
atgtttgaga tggatggccgg ggcgtccccg ttgcacatca tcaccgacaa cccggacatg	1380
aacacagagg actacctttt ccaagtgate ctggagaagc ccatccggat ccccggttc	1440
ctgtccgtca aagcctccca tggatggccgg ggcgtccccg ttgcacatca tcaccgacaa cccggacatg	1500
ctcggctgcc ggcacagac tggatggccgg ggcgtccccg ttgcacatca tcaccgacaa cccggacatg	1560
atagactggg acttgctgga gaagaagcag ggcgtccccg ttgcacatca tcaccgacaa cccggacatg	1620
gacgactacg gtctggacaa ctggatggccgg ggcgtccccg ttgcacatca tcaccgacaa cccggacatg	1680
ccagacgatg aggtgcccattt aaagaggatc gaccagttagt agttcaaggatc ctttggatgtat	1740
atcaacccat tattgctgtc caccgaggag tcgggtgtga	1779

<210> 9
 <211> 2306
 <212> DNA
 <213> Homo sapiens

<400> 9	
ctgagcgctg cttccgcgt tccggccggg ccccacctgg agcccccgcc cggcgccatg	60
gccggagctc cggggcgca ggcgtgacgg cggcgggggg agcgcgccc gcccagcagg	120
accggccca agatggaagg gagcggcggc cgcgtccgcc tcaaggcgca ttacgggggg	180

gacatcttca tcaccagcgt ggacgcccgc acgacacctcg aggagctctg tgaggaagtg	240
agagacatgt gtcgtctgca ccagcagcac ccgctcaccc tcaagtgggt ggacagcgaa	300
ggtgaccctt gcacgggtgc ctcccagatg gagctggaag aggcttccg cctggccgt	360
cagtgcaggg atgaaggcct catcattcat gtttcccga gcacccctga gcagcctggc	420
ctgcccattgtc cgggagaaga caaatctatc taccgcccgg gagccagaag atggaggaag	480
ctgtaccgtg ccaacggcca cctcttccaa gccaaagcgct ttaacaggag agcgtactgc	540
ggtcagtgca gcgagaggat atggggcctc gcgaggcaag gctacaggtg catcaactgc	600
aaactgctgg tccataagcg ctgccacggc ctcgtcccgc tgacctgcag gaagcatatg	660
gattctgtca tgccttcca agaggctcca gtagacgaca agaacgagga cgccgacatt	720
ccttccgagg agacagatgg aattgcttac atttcctcat cccggaagca tgacagcatt	780
aaagacgact cggaggacct taagccagtt atcgatgggat tggatggaaat caaaatctct	840
caggggcttg ggctgcagga ctgtgaccta atcagagtca tcgggcgcgg gagctacgcc	900
aaggttctcc tggcggggtt gaagaagaat gaccaaattt acgcccataa agtggtgaag	960
aaagagctgg tgcattgtatgc cgaggatatt gactgggtac agacagagaa gcacgtgttt	1020
gagcaggcat ccagcaaccc cttcctggtc ggattacact cctgcttcca gacgacaagt	1080
cgggtttcc tggcatttgc gtacgtcaac ggcggggacc tggatgttcca catgcagagg	1140
cagaggaagc tccctgagga gcacgccagg ttctacgcgg ccgagatctg catgccctc	1200
aacttcctgc acgagagggg gatcatctac agggacactga agctggacaa cgtcctcctg	1260
gatgcggacg ggcacatcaa gctcacagac tacggcatgt gcaaggaagg cctggccct	1320
ggtgacacaa cgagcacttt ctgcggacc ccgaattaca tcgccccca aatcctgcgg	1380
ggagaggagt acgggttcag cgtggactgg tggcgcgtgg gagtcctcat gtttggatg	1440
atggccgggc gctccccgtt cgacatcatc accgacaacc cggacatgaa cacagaggac	1500
tacctttcc aagtgtatcct ggagaagccc atccggatcc cccgggttcct gtccgtcaaa	1560
gcctccatg tttaaaagg atttttaat aaggaccca aagagaggct cggctgcgg	1620
ccacagactg gattttctga catcaagtcc cacgcgttct tccgcagcat agactggac	1680
ttgctggaga agaagcaggc gctccctcca ttccagccac agatcacaga cgactacgg	1740
ctggacaact ttgacacaca gttcaccagc gagcccggtgc agctgacccc agacgatgag	1800
gatgccataa agaggatcga ccagtcagag ttcgaaggct ttgagtataat caaccattaa	1860

ttgctgtcca ccgaggaggc ggtgtgaggc cgctgtcgac tctgtcggtt acacgcgtga	1920
ttgacccttt aactgtatcc ttaaccaccg catatgcgtt ccaggctggg cacggctccg	1980
agggcggcca gggacagacg cttgcgcga gaccgcagag ggaagcgtca gcgggcgtg	2040
ctgggagcag aacagtcctt cacacctggg cccgggcagg ccagcttcgt gctggaggaa	2100
cttgctgctg tgcctgcgtc gcggcgatc cgccgggacc ctgcccgggg ggctgtcatg	2160
cgtttccaa ggtgcacatt ttccacggaa acagaactcg atgcactgac ctgctccgccc	2220
aggaaagtga gcgtgttagcg tcctgaggaa taaaatgttc cgatgtatgtg gaaaaaaaaaa	2280
aaaaaaaaaaa aaaaaaaaaaa aaaaaaa	2306

<210> 10
 <211> 2340
 <212> DNA
 <213> Homo sapiens

<400> 10	
ccccccgcgcg ccgcccggagt tccgcggagt tgaccgggtc ggcgcgcgtcg gtcctgagcg	60
ctgccttcgg cgttccgcgcg cggcccccacc tggagcccccc gccccgcgc atggccggag	120
ctcccggggc gcagcgctga cggcggcggg gggagcgcgc catgcccagc aggaccggcc	180
ccaagatgga agggagcggc ggccgcgtcc gcctcaaggc gcattacggg ggggacatct	240
tcatcaccag cgtggacgccc gccacgaccc tcgaggagct ctgtgaggaa gtgagagaca	300
tgtgtcgctt gcaccagcag caccgcgtca ccctcaagtg ggtggacagc gaaggtgacc	360
cttgcacggcgtt gtcctccctt atggagctgg aagaggcttt ccgcctggcc cgtcagtgc	420
gggatgaagg cctcatcatt catgtttcc ctagcaccggc tgagcagccct ggcctgcccatt	480
gtccgggaga agacaaatct atctaccgc ggggagccag aagatggagg aagctgtacc	540
gtgcacacgg ccaccccttc caagccaaacgc gcttaacacg gagagcgtac tgccgtcagt	600
gcagcgagag gatatggggc ctcgcgaggc aaggctacag gtgcataac tgcaaaactgc	660
tggccataa gcgctgcccac ggcctcgatcc cgctgacccctg caggaagcat atggattctg	720
tcatgccttc ccaagagcct ccagtagacg acaagaacga ggacgcgcac cttcccttcgg	780
aggagacaga tggaaattgtt tacatttcctt catccggaa gcatgacacg attaaagacg	840
actcggagga ccttaagcca gttatcgatg ggatggatgg aatcaaaatc tctcaggggc	900
ttggggctgca ggactttgac ctaatcagag tcatacgcccg cggagctac gccaagggttc	960
tcctgggtgcg gttgaagaag aatgacccaaat tttacgcccatt gaaagtggtg aagaaagacg	1020

tggtgcatga	tgacgaggat	attgactggg	tacagacaga	gaagcacgtg	tttgaggcagg	1080
catccagcaa	ccccttcctg	gtcggattac	actcctgctt	ccagacgaca	agtcggttgt	1140
tcctggtcat	ttagtacgtc	aacggcgggg	acctgatgtt	ccacatgcag	aggcagagga	1200
agctccctga	ggagcacgccc	aggttctacg	cggccgagat	ctgcatcgcc	ctcaacttcc	1260
tgcacgagag	ggggatcatc	tacagggacc	tgaagctgga	caacgtcctc	ctggatgcgg	1320
acgggcacat	caagctcaca	gactacggca	tgtcaagga	aggcctggc	cctggtgaca	1380
caacgagcac	tttctgcgga	accccgaaatt	acatcgcccc	cgaaatcctg	cggggagagg	1440
agtacgggtt	cagcgtggac	tggtggcgc	tggagtcct	catgttttag	atgatggccg	1500
ggcgctcccc	gttcgacatc	atcaccgaca	acccggacat	gaacacagag	gactacctt	1560
tccaagtgtat	cctggagaag	cccatccgga	tcccccggtt	cctgtccgtc	aaagcctccc	1620
atgttttaaa	aggattttta	aataaggacc	ccaaagagag	gctcggtgc	cggccacaga	1680
ctggattttc	tgacatcaag	tcccacgcgt	tcttccgcag	catagactgg	gacttgctgg	1740
agaagaagca	ggcgctccct	ccattccagc	cacagatcac	agacgactac	ggtctggaca	1800
actttgacac	acagttcacc	agcgagcccg	tgcagctgac	cccagacgt	gaggatgcca	1860
taaagaggat	cgaccagtca	gagttcgaag	gctttgagta	tatcaaccca	ttattgctgt	1920
ccaccgagga	gtcggtgtga	ggccgcgtgc	gtctctgtcg	tggacacgcg	tgattgaccc	1980
tttaactgta	tccttaacca	ccgcatatgc	atgccaggct	gggcacggct	ccgagggcgg	2040
ccagggacag	acgcttgcgc	cgagaccgca	gagggaaagcg	tcagcggcgc	ctgctggag	2100
cagaacagtc	cctcacacact	gggcccgggc	aggccagctt	cgtgctggag	gaacttgctg	2160
ctgttcctgc	gtcgcggcgg	atccgcgggg	accctgccga	gggggctgtc	atgcggtttc	2220
caaggtgcac	atttccacg	gaaacagaac	tcgatgcact	gacctgctcc	gccaggaaag	2280
tgagcgtgta	gcgtcctgag	gaataaaatg	ttccgatgaa	aaaaaaaaaa	aaaaaaaaaa	2340

<210> 11
 <211> 587
 <212> PRT
 <213> Homo sapiens

 <400> 11

Met	Ser	His	Thr	Val	Ala	Gly	Gly	Ser	Gly	Asp	His	Ser	His	Gln
1				5				10				15		

Val Arg Val Lys Ala Tyr Tyr Arg Gly Asp Ile Met Ile Thr His Phe
20 25 30

Glu Pro Ser Ile Ser Phe Glu Gly Leu Cys Asn Glu Val Arg Asp Met
35 40 45

Cys Ser Phe Asp Asn Glu Gln Leu Phe Thr Met Lys Trp Ile Asp Glu
50 55 60

Glu Gly Asp Pro Cys Thr Val Ser Ser Gln Leu Glu Leu Glu Ala
65 70 75 80

Phe Arg Leu Tyr Glu Leu Asn Lys Asp Ser Glu Leu Leu Ile His Val
85 90 95

Phe Pro Cys Val Pro Glu Arg Pro Gly Met Pro Cys Pro Gly Glu Asp
100 105 110

Lys Ser Ile Tyr Arg Arg Gly Ala Arg Arg Trp Arg Lys Leu Tyr Cys
115 120 125

Ala Asn Gly His Thr Phe Gln Ala Lys Arg Phe Asn Arg Arg Ala His
130 135 140

Cys Ala Ile Cys Thr Asp Arg Ile Trp Gly Leu Gly Arg Gln Gly Tyr
145 150 155 160

Lys Cys Ile Asn Cys Lys Leu Leu Val His Lys Lys Cys His Lys Leu
165 170 175

Val Thr Ile Glu Cys Gly Arg His Ser Leu Pro Gln Glu Pro Val Met
180 185 190

Pro Met Asp Gln Ser Ser Met His Ser Asp His Ala Gln Thr Val Ile
195 200 205

Pro Tyr Asn Pro Ser Ser His Glu Ser Leu Asp Gln Val Gly Glu Glu
210 215 220

Lys Glu Ala Met Asn Thr Arg Glu Ser Gly Lys Ala Ser Ser Ser Leu
225 230 235 240

Gly Leu Gln Asp Phe Asp Leu Leu Arg Val Ile Gly Arg Gly Ser Tyr

245

250

255

Ala Lys Val Leu Leu Val Arg Leu Lys Lys Thr Asp Arg Ile Tyr Ala
260 265 270

Met Lys Val Val Lys Lys Glu Leu Val Asn Asp Asp Glu Asp Ile Asp
275 280 285

Trp Val Gln Thr Glu Lys His Val Phe Glu Gln Ala Ser Asn His Pro
290 295 300

Phe Leu Val Gly Leu His Ser Cys Phe Gln Thr Glu Ser Arg Leu Phe
305 310 315 320

Phe Val Ile Glu Tyr Val Asn Gly Gly Asp Leu Met Phe His Met Gln
325 330 335

Arg Gln Arg Lys Leu Pro Glu Glu His Ala Arg Phe Tyr Ser Ala Glu
340 345 350

Ile Ser Leu Ala Leu Asn Tyr Leu His Glu Arg Gly Ile Ile Tyr Arg
355 360 365

Asp Leu Lys Leu Asp Asn Val Leu Leu Asp Ser Glu Gly His Ile Lys
370 375 380

Leu Thr Asp Tyr Gly Met Cys Lys Glu Gly Leu Arg Pro Gly Asp Thr
385 390 395 400

Thr Ser Thr Phe Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Ile Leu
405 410 415

Arg Gly Glu Asp Tyr Gly Phe Ser Val Asp Trp Trp Ala Leu Gly Val
420 425 430

Leu Met Phe Glu Met Met Ala Gly Arg Ser Pro Phe Asp Ile Val Gly
435 440 445

Ser Ser Asp Asn Pro Asp Gln Asn Thr Glu Asp Tyr Leu Phe Gln Val
450 455 460

Ile Leu Glu Lys Gln Ile Arg Ile Pro Arg Ser Leu Ser Val Lys Ala
465 470 475 480

Ala Ser Val Leu Lys Ser Phe Leu Asn Lys Asp Pro Lys Glu Arg Leu
485 490 495

Gly Cys His Pro Gln Thr Gly Phe Ala Asp Ile Gln Gly His Pro Phe
500 505 510

Phe Arg Asn Val Asp Trp Asp Met Met Glu Gln Lys Gln Val Val Pro
515 520 525

Pro Phe Lys Pro Asn Ile Ser Gly Glu Phe Gly Leu Asp Asn Phe Asp
530 535 540

Ser Gln Phe Thr Asn Glu Pro Val Gln Leu Thr Pro Asp Asp Asp Asp
545 550 555 560

Ile Val Arg Lys Ile Asp Gln Ser Glu Phe Glu Gly Phe Glu Tyr Ile
565 570 575

Asn Pro Leu Leu Met Ser Ala Glu Glu Cys Val
580 585

<210> 12
<211> 592
<212> PRT
<213> Homo sapiens

<400> 12

Met Pro Ser Arg Thr Asp Pro Lys Met Glu Gly Ser Gly Gly Arg Val
1 5 10 15

Arg Leu Lys Ala His Tyr Gly Gly Asp Ile Phe Ile Thr Ser Val Asp
20 25 30

Ala Ala Thr Thr Phe Glu Glu Leu Cys Glu Glu Val Arg Asp Met Cys
35 40 45

Arg Leu His Gln Gln His Pro Leu Thr Leu Lys Trp Val Asp Ser Glu
50 55 60

Gly Asp Pro Cys Thr Val Ser Ser Gln Met Glu Leu Glu Glu Ala Phe
65 70 75 80

Arg Leu Ala Arg Gln Cys Arg Asp Glu Gly Leu Ile Ile His Val Phe
85 90 95

Pro Ser Thr Pro Glu Gln Pro Gly Leu Pro Cys Pro Gly Glu Asp Lys
100 105 110

Ser Ile Tyr Arg Arg Gly Ala Arg Arg Trp Arg Lys Leu Tyr Arg Ala
115 120 125

Asn Gly His Leu Phe Gln Ala Lys Arg Phe Asn Arg Arg Ala Tyr Cys
130 135 140

Gly Gln Cys Ser Glu Arg Ile Trp Gly Leu Ala Arg Gln Gly Tyr Arg
145 150 155 160

Cys Ile Asn Cys Lys Leu Leu Val His Lys Arg Cys His Gly Leu Val
165 170 175

Pro Leu Thr Cys Arg Lys His Met Asp Ser Val Met Pro Ser Gln Glu
180 185 190

Pro Pro Val Asp Asp Lys Asn Glu Asp Ala Asp Leu Pro Ser Glu Glu
195 200 205

Thr Asp Gly Ile Ala Tyr Ile Ser Ser Ser Arg Lys His Asp Ser Ile
210 215 220

Lys Asp Asp Ser Glu Asp Leu Lys Pro Val Ile Asp Gly Met Asp Gly
225 230 235 240

Ile Lys Ile Ser Gln Gly Leu Gly Leu Gln Asp Phe Asp Leu Ile Arg
245 250 255

Val Ile Gly Arg Gly Ser Tyr Ala Lys Val Leu Leu Val Arg Leu Lys
260 265 270

Lys Asn Asp Gln Ile Tyr Ala Met Lys Val Val Lys Lys Glu Leu Val
275 280 285

His Asp Asp Glu Asp Ile Asp Trp Val Gln Thr Glu Lys His Val Phe
290 295 300

Glu Gln Ala Ser Ser Asn Pro Phe Leu Val Gly Leu His Ser Cys Phe

305 310 315 320

Gln Thr Thr Ser Arg Leu Phe Leu Val Ile Glu Tyr Val Asn Gly Gly
325 330 335

Asp Leu Met Phe His Met Gln Arg Gln Arg Lys Leu Pro Glu Glu His
340 345 350

Ala Arg Phe Tyr Ala Ala Glu Ile Cys Ile Ala Leu Asn Phe Leu His
355 360 365

Glu Arg Gly Ile Ile Tyr Arg Asp Leu Lys Leu Asp Asn Val Leu Leu
370 375 380

Asp Ala Asp Gly His Ile Lys Leu Thr Asp Tyr Gly Met Cys Lys Glu
385 390 395 400

Gly Leu Gly Pro Gly Asp Thr Thr Ser Thr Phe Cys Gly Thr Pro Asn
405 410 415

Tyr Ile Ala Pro Glu Ile Leu Arg Gly Glu Glu Tyr Gly Phe Ser Val
420 425 430

Asp Trp Trp Ala Leu Gly Val Leu Met Phe Glu Met Met Ala Gly Arg
435 440 445

Ser Pro Phe Asp Ile Ile Thr Asp Asn Pro Asp Met Asn Thr Glu Asp
450 455 460

Tyr Leu Phe Gln Val Ile Leu Glu Lys Pro Ile Arg Ile Pro Arg Phe
465 470 475 480

Leu Ser Val Lys Ala Ser His Val Leu Lys Gly Phe Leu Asn Lys Asp
485 490 495

Pro Lys Glu Arg Leu Gly Cys Arg Pro Gln Thr Gly Phe Ser Asp Ile
500 505 510

Lys Ser His Ala Phe Phe Arg Ser Ile Asp Trp Asp Leu Leu Glu Lys
515 520 525

Lys Gln Ala Leu Pro Pro Phe Gln Pro Gln Ile Thr Asp Asp Tyr Gly

530

535

540

Leu Asp Asn Phe Asp Thr Gln Phe Thr Ser Glu Pro Val Gln Leu Thr
545 550 555 560

Pro Asp Asp Glu Asp Ala Ile Lys Arg Ile Asp Gln Ser Glu Phe Glu
565 570 575

Gly Phe Glu Tyr Ile Asn Pro Leu Leu Leu Ser Thr Glu Glu Ser Val
580 585 590